

Tibero7 Partition Exchange



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안내서 정보

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발행일: 2025-11-25

소프트웨어 버전: Tibero7 FS02

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제, 개정 이력

안내서 버전	개정일자	개정 사유 및 내용	비고
1.0.0	2025.11.25	최초 제정	김찬수

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2.3. Partition Exchange 수행 테스트

2.3.1. 테스트 사전 준비

# 파티션 테이블 생성 및 insert	<pre>SQL> CREATE TABLE TEST_PART (A NUMBER, B NUMBER, C VARCHAR(100), D DATE) NOLOGGING PARTITION BY RANGE (A) (PARTITION PART_01 VALUES LESS THAN (1), PARTITION PART_02 VALUES LESS THAN (2), PARTITION PART_03 VALUES LESS THAN (3), PARTITION PART_04 VALUES LESS THAN (4)); Table 'TEST_PART' created. /* TEST_PART Insert */ SQL> INSERT INTO TEST_PART SELECT MOD(LEVEL,4) A, LEVEL B, DBMS_RANDOM.STRING('X',100) C, TO_DATE(SYSDATE + LEVEL/24/60/60) D FROM DUAL CONNECT BY LEVEL < 100000; 99999 rows inserted. SQL> COMMIT; Commit completed.</pre>
# 파티션 인덱스 생성 (LOCAL)	<pre>SQL> CREATE INDEX TEST_PART_IDX ON TEST_PART (A,B) LOCAL NOLOGGING; Index 'TEST_PART_IDX' created.</pre>

<p># 교체할 일반 테이블 생성</p>	<pre>SQL> CREATE TABLE TEST_NON TABLESPACE USR AS(SELECT * FROM TEST_PART PARTITION(PART_02) WHERE B < 50000);</pre> <p>Table 'TEST_NON' created.</p>																																							
<p># 교체할 일반 테이블 인덱스 생성</p>	<pre>SQL> CREATE INDEX TEST_NON_IDX ON TEST_NON (A,B) TABLESPACE USR;</pre> <p>Index 'TEST_NON_IDX' created.</p>																																							
<p># 오브젝트 조회</p>	<pre>SQL> SELECT SEGMENT_NAME, PARTITION_NAME, TABLESPACE_NAME FROM DBA_SEGMENTS WHERE SEGMENT_NAME LIKE 'TEST_%' ORDER BY 1, 2;</pre> <table border="1"> <thead> <tr> <th>SEGMENT_NAME</th> <th>PARTITION_NAME</th> <th>TABLESPACE_NAME</th> </tr> </thead> <tbody> <tr><td>TEST_NON</td><td></td><td>USR</td></tr> <tr><td>TEST_NON_IDX</td><td></td><td>USR</td></tr> <tr><td>TEST_PART</td><td>PART_01</td><td>SYSTEM</td></tr> <tr><td>TEST_PART</td><td>PART_02</td><td>SYSTEM</td></tr> <tr><td>TEST_PART</td><td>PART_03</td><td>SYSTEM</td></tr> <tr><td>TEST_PART</td><td>PART_04</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_IDX</td><td>PART_01</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_IDX</td><td>PART_02</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_IDX</td><td>PART_03</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_IDX</td><td>PART_04</td><td>SYSTEM</td></tr> </tbody> </table> <p>10 rows selected.</p> <pre>SQL> SELECT INDEX_NAME, STATUS FROM DBA_INDEXES WHERE INDEX_NAME LIKE 'TEST_%' ORDER BY 1;</pre> <table border="1"> <thead> <tr> <th>INDEX_NAME</th> <th>STATUS</th> </tr> </thead> <tbody> <tr><td>TEST_NON_IDX</td><td>VALID</td></tr> <tr><td>TEST_PART_IDX</td><td>VALID</td></tr> </tbody> </table> <p>2 rows selected.</p>	SEGMENT_NAME	PARTITION_NAME	TABLESPACE_NAME	TEST_NON		USR	TEST_NON_IDX		USR	TEST_PART	PART_01	SYSTEM	TEST_PART	PART_02	SYSTEM	TEST_PART	PART_03	SYSTEM	TEST_PART	PART_04	SYSTEM	TEST_PART_IDX	PART_01	SYSTEM	TEST_PART_IDX	PART_02	SYSTEM	TEST_PART_IDX	PART_03	SYSTEM	TEST_PART_IDX	PART_04	SYSTEM	INDEX_NAME	STATUS	TEST_NON_IDX	VALID	TEST_PART_IDX	VALID
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INDEX_NAME	STATUS																																							
TEST_NON_IDX	VALID																																							
TEST_PART_IDX	VALID																																							

	<pre>SQL> SELECT INDEX_NAME, PARTITION_NAME, STATUS FROM USER_IND_PARTITIONS WHERE INDEX_NAME LIKE 'TEST_%' ORDER BY 1, 2;</pre>
	<pre>INDEX_NAME PARTITION_NAME STATUS ----- TEST_PART_IDX PART_01 USABLE TEST_PART_IDX PART_02 USABLE TEST_PART_IDX PART_03 USABLE TEST_PART_IDX PART_04 USABLE</pre>
	4 rows selected.

2.3.2. Partition Exchange 수행 테스트 (Local Index Excluding Indexes)

※ **EXCLUDING INDEXES** 옵션을 사용하는 경우, 테이블 메타데이터만 교체되며 **인덱스 메타데이터**는 교체되지 않습니다. 이로 인해 **교체 대상 파티션과 연관된 인덱스는 UNUSABLE 상태가 될 수 있으므로, 해당 인덱스에 대해 별도의 REBUILD 작업이 필요합니다.**

<p># Partition Exchange (EXCLUDING INDEXES 적용 시)</p>	<pre>SQL> ALTER TABLE TEST_PART EXCHANGE PARTITION PART_02 WITH TABLE TEST_NON EXCLUDING INDEXES;</pre> <p>Table 'TEST_PART' altered.</p>
<p># 오브젝트 재조회</p>	<pre>SQL> SELECT SEGMENT_NAME, PARTITION_NAME, TABLESPACE_NAME FROM USER_SEGMENTS WHERE SEGMENT_NAME LIKE 'TEST_%' ORDER BY 1, 2;</pre> <pre>SEGMENT_NAME PARTITION_NAME TABLESPACE_NAME ----- TEST_NON PART_02 USR TEST_NON_IDX PART_01 USR TEST_PART PART_01 SYSTEM TEST_PART PART_02 USR TEST_PART PART_03 SYSTEM TEST_PART PART_04 SYSTEM TEST_PART_IDX PART_01 SYSTEM TEST_PART_IDX PART_02 SYSTEM TEST_PART_IDX PART_03 SYSTEM TEST_PART_IDX PART_04 SYSTEM</pre> <p>10 rows selected.</p>

	<pre>SQL> SELECT INDEX_NAME, STATUS FROM DBA_INDEXES WHERE INDEX_NAME LIKE 'TEST_%' ORDER BY 1;</pre> <table border="1"> <thead> <tr> <th>INDEX_NAME</th> <th>STATUS</th> </tr> </thead> <tbody> <tr> <td>TEST_NON_IDX</td> <td>UNUSABLE</td> </tr> <tr> <td>TEST_PART_IDX</td> <td>UNUSABLE</td> </tr> </tbody> </table> <p>2 rows selected.</p> <pre>SQL> SELECT INDEX_NAME, PARTITION_NAME, STATUS FROM USER_IND_PARTITIONS WHERE INDEX_NAME LIKE 'TEST_%' ORDER BY 1, 2;</pre> <table border="1"> <thead> <tr> <th>INDEX_NAME</th> <th>PARTITION_NAME</th> <th>STATUS</th> </tr> </thead> <tbody> <tr> <td>TEST_PART_IDX</td> <td>PART_01</td> <td>USABLE</td> </tr> <tr> <td>TEST_PART_IDX</td> <td>PART_02</td> <td>UNUSABLE</td> </tr> <tr> <td>TEST_PART_IDX</td> <td>PART_03</td> <td>USABLE</td> </tr> <tr> <td>TEST_PART_IDX</td> <td>PART_04</td> <td>USABLE</td> </tr> </tbody> </table> <p>4 rows selected.</p> <ul style="list-style-type: none"> • 파티션 PART_02의 로컬 파티션 인덱스만 UNUSABLE 되어 리빌드 필요. 	INDEX_NAME	STATUS	TEST_NON_IDX	UNUSABLE	TEST_PART_IDX	UNUSABLE	INDEX_NAME	PARTITION_NAME	STATUS	TEST_PART_IDX	PART_01	USABLE	TEST_PART_IDX	PART_02	UNUSABLE	TEST_PART_IDX	PART_03	USABLE	TEST_PART_IDX	PART_04	USABLE
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TEST_PART_IDX	PART_02	UNUSABLE																				
TEST_PART_IDX	PART_03	USABLE																				
TEST_PART_IDX	PART_04	USABLE																				
# 인덱스 리빌드	<pre>alter session set _INDEX_BUILD_USING_FULL_SCAN=Y;</pre> <p>Session altered.</p> <pre>SQL> ALTER INDEX TEST_PART_IDX REBUILD PARTITION PART_02 ONLINE;</pre> <p>Index 'TEST_PART_IDX' altered.</p> <pre>SQL> ALTER INDEX TEST_NON_IDX REBUILD ONLINE;</pre> <p>Index 'TEST_NON_IDX' altered.</p> <pre>alter session set _INDEX_BUILD_USING_FULL_SCAN=N;</pre> <p>Session altered.</p>																					

```
SQL> SELECT INDEX_NAME, STATUS
      FROM DBA_INDEXES
      WHERE INDEX_NAME LIKE 'TEST_%'
      ORDER BY 1;
```

INDEX_NAME	STATUS
TEST_NON_IDX	VALID
TEST_PART_IDX	VALID

2 rows selected.

```
SQL> SELECT INDEX_NAME, PARTITION_NAME, STATUS
      FROM USER_IND_PARTITIONS
      WHERE INDEX_NAME LIKE 'TEST_%'
      ORDER BY 1, 2;
```

INDEX_NAME	PARTITION_NAME	STATUS
TEST_PART_IDX	PART_01	USABLE
TEST_PART_IDX	PART_02	USABLE
TEST_PART_IDX	PART_03	USABLE
TEST_PART_IDX	PART_04	USABLE

4 rows selected.

2.3.3. Partition Exchange 수행 테스트 (Local Index Including Indexes)

※ **INCLUDING INDEXES** 옵션을 사용하는 경우, 테이블 메타데이터와 함께 교체 대상 파티션에 연관된 인덱스 메타데이터도 함께 교체됩니다. 이로 인해 인덱스가 **UNUSABLE** 상태로 변경되지 않으며, 별도의 인덱스 **REBUILD** 작업은 필요하지 않습니다.

<p># Partition Exchange (INCLUDING INDEXES 적용 시)</p>	<pre>SQL> ALTER TABLE TEST_PART EXCHANGE PARTITION PART_02 WITH TABLE TEST_NON INCLUDING INDEXES;</pre> <p>Table 'TEST_PART' altered.</p>																																							
<p># 오브젝트 재조회</p>	<pre>SQL> SELECT SEGMENT_NAME, PARTITION_NAME, TABLESPACE_NAME FROM USER_SEGMENTS WHERE SEGMENT_NAME LIKE 'TEST_%' ORDER BY 1, 2;</pre> <table border="1"> <thead> <tr> <th>SEGMENT_NAME</th> <th>PARTITION_NAME</th> <th>TABLESPACE_NAME</th> </tr> </thead> <tbody> <tr><td>TEST_NON</td><td></td><td>SYSTEM</td></tr> <tr><td>TEST_NON_IDX</td><td></td><td>SYSTEM</td></tr> <tr><td>TEST_PART</td><td>PART_01</td><td>SYSTEM</td></tr> <tr><td>TEST_PART</td><td>PART_02</td><td>USR</td></tr> <tr><td>TEST_PART</td><td>PART_03</td><td>SYSTEM</td></tr> <tr><td>TEST_PART</td><td>PART_04</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_IDX</td><td>PART_01</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_IDX</td><td>PART_02</td><td>USR</td></tr> <tr><td>TEST_PART_IDX</td><td>PART_03</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_IDX</td><td>PART_04</td><td>SYSTEM</td></tr> </tbody> </table> <p>10 rows selected.</p> <ul style="list-style-type: none"> • TEST_NON과 PART_02의 데이터 및 인덱스 변경 확인 <pre>SQL> SELECT INDEX_NAME, STATUS FROM DBA_INDEXES WHERE INDEX_NAME LIKE 'TEST_%' ORDER BY 1;</pre> <table border="1"> <thead> <tr> <th>INDEX_NAME</th> <th>STATUS</th> </tr> </thead> <tbody> <tr><td>TEST_NON_IDX</td><td>VALID</td></tr> <tr><td>TEST_PART_IDX</td><td>VALID</td></tr> </tbody> </table> <p>2 rows selected.</p> <pre>SQL> SELECT INDEX_NAME, PARTITION_NAME, STATUS</pre>	SEGMENT_NAME	PARTITION_NAME	TABLESPACE_NAME	TEST_NON		SYSTEM	TEST_NON_IDX		SYSTEM	TEST_PART	PART_01	SYSTEM	TEST_PART	PART_02	USR	TEST_PART	PART_03	SYSTEM	TEST_PART	PART_04	SYSTEM	TEST_PART_IDX	PART_01	SYSTEM	TEST_PART_IDX	PART_02	USR	TEST_PART_IDX	PART_03	SYSTEM	TEST_PART_IDX	PART_04	SYSTEM	INDEX_NAME	STATUS	TEST_NON_IDX	VALID	TEST_PART_IDX	VALID
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INDEX_NAME	STATUS																																							
TEST_NON_IDX	VALID																																							
TEST_PART_IDX	VALID																																							

```
FROM USER_IND_PARTITIONS
WHERE INDEX_NAME LIKE 'TEST_%'
ORDER BY 1, 2;
```

INDEX_NAME	PARTITION_NAME	STATUS
TEST_PART_IDX	PART_01	USABLE
TEST_PART_IDX	PART_02	USABLE
TEST_PART_IDX	PART_03	USABLE
TEST_PART_IDX	PART_04	USABLE

4 rows selected.

2.3.4 테스트 사전 준비

<p># 파티션 테이블 생성 및 insert</p>	<pre>SQL> CREATE TABLE TEST_PART (A NUMBER, B NUMBER, C VARCHAR(100), D DATE) NOLOGGING PARTITION BY RANGE (A) (PARTITION PART_01 VALUES LESS THAN (1), PARTITION PART_02 VALUES LESS THAN (2), PARTITION PART_03 VALUES LESS THAN (3), PARTITION PART_04 VALUES LESS THAN (4)); Table 'TEST_PART' created. /* TEST_PART Insert */ SQL> INSERT INTO TEST_PART SELECT MOD(LEVEL,4) A, LEVEL B, DBMS_RANDOM.STRING('X',100) C, TO_DATE(SYSDATE + LEVEL/24/60/60) D FROM DUAL CONNECT BY LEVEL < 100000; 99999 rows inserted. SQL> COMMIT; Commit completed.</pre>
<p># 파티션 인덱스 생성 (GLOBAL)</p>	<pre>SQL> CREATE INDEX TEST_PART_GLOBAL_IDX ON TEST_PART (A, B) GLOBAL PARTITION BY RANGE (A) (PARTITION P1 VALUES LESS THAN (1), PARTITION P2 VALUES LESS THAN (2), PARTITION P3 VALUES LESS THAN (3), PARTITION P4 VALUES LESS THAN (4), PARTITION P5 VALUES LESS THAN (MAXVALUE)); Index 'TEST_PART_GLOBAL_IDX' created.</pre>
<p># 교체할 일반 테이블 생성</p>	<p>1.2절의 교체할 일반 테이블 및 데이터 Insert 구문과 동일합니다.</p>
<p># 교체할 일반 테이블 인덱스 생성</p>	<pre>SQL> CREATE INDEX TEST_NON_GLOBAL_IDX ON TEST_NON (A,B) TABLESPACE USR;</pre>

	Index 'TEST_NON_GLOBAL_IDX' created.																																																						
# 오브젝트 조회	<pre>SQL> SELECT SEGMENT_NAME, PARTITION_NAME, TABLESPACE_NAME FROM USER_SEGMENTS WHERE SEGMENT_NAME LIKE 'TEST_%' ORDER BY 1, 2;</pre> <table border="1"> <thead> <tr> <th>SEGMENT_NAME</th> <th>PARTITION_NAME</th> <th>TABLESPACE_NAME</th> </tr> </thead> <tbody> <tr><td>TEST_NON_GLOBAL</td><td></td><td>USR</td></tr> <tr><td>TEST_NON_GLOBAL_IDX</td><td></td><td>USR</td></tr> <tr><td>TEST_PART_GLOBAL</td><td>PART_01</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_GLOBAL</td><td>PART_02</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_GLOBAL</td><td>PART_03</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_GLOBAL</td><td>PART_04</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>P1</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>P2</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>P3</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>P4</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>P5</td><td>SYSTEM</td></tr> </tbody> </table> <p>11 rows selected.</p> <pre>SQL> SELECT INDEX_NAME, STATUS FROM USER_INDEXES WHERE INDEX_NAME LIKE '%TEST_%' ORDER BY 1;</pre> <table border="1"> <thead> <tr> <th>INDEX_NAME</th> <th>STATUS</th> </tr> </thead> <tbody> <tr><td>TEST_NON_IDX</td><td>VALID</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>VALID</td></tr> </tbody> </table> <p>2 rows selected.</p> <pre>SQL> SELECT INDEX_NAME, PARTITION_NAME, STATUS FROM USER_IND_PARTITIONS WHERE INDEX_NAME LIKE '%TEST_%' ORDER BY 1, 2;</pre> <table border="1"> <thead> <tr> <th>INDEX_NAME</th> <th>PARTITION_NAME</th> <th>STATUS</th> </tr> </thead> <tbody> <tr><td>TEST_PART_GLOBAL_IDX</td><td>P1</td><td>USABLE</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>P2</td><td>USABLE</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>P3</td><td>USABLE</td></tr> </tbody> </table>	SEGMENT_NAME	PARTITION_NAME	TABLESPACE_NAME	TEST_NON_GLOBAL		USR	TEST_NON_GLOBAL_IDX		USR	TEST_PART_GLOBAL	PART_01	SYSTEM	TEST_PART_GLOBAL	PART_02	SYSTEM	TEST_PART_GLOBAL	PART_03	SYSTEM	TEST_PART_GLOBAL	PART_04	SYSTEM	TEST_PART_GLOBAL_IDX	P1	SYSTEM	TEST_PART_GLOBAL_IDX	P2	SYSTEM	TEST_PART_GLOBAL_IDX	P3	SYSTEM	TEST_PART_GLOBAL_IDX	P4	SYSTEM	TEST_PART_GLOBAL_IDX	P5	SYSTEM	INDEX_NAME	STATUS	TEST_NON_IDX	VALID	TEST_PART_GLOBAL_IDX	VALID	INDEX_NAME	PARTITION_NAME	STATUS	TEST_PART_GLOBAL_IDX	P1	USABLE	TEST_PART_GLOBAL_IDX	P2	USABLE	TEST_PART_GLOBAL_IDX	P3	USABLE
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TEST_PART_GLOBAL_IDX	P2	USABLE																																																					
TEST_PART_GLOBAL_IDX	P3	USABLE																																																					

	TEST_PART_GLOBAL_IDX	P4	USABLE
	TEST_PART_GLOBAL_IDX	P5	USABLE
5 rows selected.			

2.3.5. Partition Exchange 수행 시나리오 및 테스트 (Global Index 인 경우 Excluding Indexes)

# Partition Exchange (EXCLUDING INDEXES 적용 시)	<pre>SQL> ALTER TABLE TEST_PART EXCHANGE PARTITION PART_02 WITH TABLE TEST_NON EXCLUDING INDEXES;</pre> <p>Table 'TEST_PART' altered.</p>																																										
# 오브젝트 재조회	<pre>SQL> SELECT SEGMENT_NAME, PARTITION_NAME, TABLESPACE_NAME FROM USER_SEGMENTS WHERE SEGMENT_NAME LIKE 'TEST_%' ORDER BY 1, 2;</pre> <table border="1"> <thead> <tr> <th>SEGMENT_NAME</th> <th>PARTITION_NAME</th> <th>TABLESPACE_NAME</th> </tr> </thead> <tbody> <tr><td>TEST_NON</td><td></td><td>SYSTEM</td></tr> <tr><td>TEST_NON_IDX</td><td></td><td>USR</td></tr> <tr><td>TEST_PART</td><td>PART_01</td><td>SYSTEM</td></tr> <tr><td>TEST_PART</td><td>PART_02</td><td>USR</td></tr> <tr><td>TEST_PART</td><td>PART_03</td><td>SYSTEM</td></tr> <tr><td>TEST_PART</td><td>PART_04</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>P1</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>P2</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>P3</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>P4</td><td>SYSTEM</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>P5</td><td>SYSTEM</td></tr> </tbody> </table> <p>11 rows selected.</p> <pre>SQL> SELECT INDEX_NAME, STATUS FROM USER_INDEXES WHERE INDEX_NAME LIKE '%TEST_%' ORDER BY 1;</pre> <table border="1"> <thead> <tr> <th>INDEX_NAME</th> <th>STATUS</th> </tr> </thead> <tbody> <tr><td>TEST_NON_IDX</td><td>UNUSABLE</td></tr> <tr><td>TEST_PART_GLOBAL_IDX</td><td>UNUSABLE</td></tr> </tbody> </table> <p>2 rows selected.</p>	SEGMENT_NAME	PARTITION_NAME	TABLESPACE_NAME	TEST_NON		SYSTEM	TEST_NON_IDX		USR	TEST_PART	PART_01	SYSTEM	TEST_PART	PART_02	USR	TEST_PART	PART_03	SYSTEM	TEST_PART	PART_04	SYSTEM	TEST_PART_GLOBAL_IDX	P1	SYSTEM	TEST_PART_GLOBAL_IDX	P2	SYSTEM	TEST_PART_GLOBAL_IDX	P3	SYSTEM	TEST_PART_GLOBAL_IDX	P4	SYSTEM	TEST_PART_GLOBAL_IDX	P5	SYSTEM	INDEX_NAME	STATUS	TEST_NON_IDX	UNUSABLE	TEST_PART_GLOBAL_IDX	UNUSABLE
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<p># 인덱스 리빌드</p>	<pre>ALTER INDEX TEST_PART_GLOBAL_IDX REBUILD PARTITION P1 ONLINE; .. ALTER INDEX TEST_PART_GLOBAL_IDX REBUILD PARTITION P5 ONLINE;</pre> <pre>SQL> ALTER INDEX TEST_NON_IDX REBUILD ONLINE;</pre> <p>Index 'TEST_NON_IDX' altered.</p> <table border="1"> <thead> <tr> <th>INDEX_NAME</th> <th>STATUS</th> </tr> </thead> <tbody> <tr> <td>TEST_NON_IDX</td> <td>VALID</td> </tr> <tr> <td>TEST_PART_GLOBAL_IDX</td> <td>VALID</td> </tr> </tbody> </table> <p>2 rows selected.</p> <table border="1"> <thead> <tr> <th>INDEX_NAME</th> <th>PARTITION_NAME</th> <th>STATUS</th> </tr> </thead> <tbody> <tr> <td>TEST_PART_GLOBAL_IDX</td> <td>P1</td> <td>USABLE</td> </tr> <tr> <td>TEST_PART_GLOBAL_IDX</td> <td>P2</td> <td>USABLE</td> </tr> <tr> <td>TEST_PART_GLOBAL_IDX</td> <td>P3</td> <td>USABLE</td> </tr> <tr> <td>TEST_PART_GLOBAL_IDX</td> <td>P4</td> <td>USABLE</td> </tr> <tr> <td>TEST_PART_GLOBAL_IDX</td> <td>P5</td> <td>USABLE</td> </tr> </tbody> </table>	INDEX_NAME	STATUS	TEST_NON_IDX	VALID	TEST_PART_GLOBAL_IDX	VALID	INDEX_NAME	PARTITION_NAME	STATUS	TEST_PART_GLOBAL_IDX	P1	USABLE	TEST_PART_GLOBAL_IDX	P2	USABLE	TEST_PART_GLOBAL_IDX	P3	USABLE	TEST_PART_GLOBAL_IDX	P4	USABLE	TEST_PART_GLOBAL_IDX	P5	USABLE
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2.3.6. Partition Exchange 수행 시나리오 및 테스트 (Global Index 인 경우 Including Indexes)

※ Global Index의 경우 전체 파티션을 대상으로 구성되기 때문에 특정 파티션만 교체하는 Partition Exchange 시 INCLUDING INDEXES 옵션을 사용할 수 없습니다.

<p># Partition Exchange (INCLUDING INDEXES 적용 시)</p>	<pre>SQL> ALTER TABLE TEST_PART EXCHANGE PARTITION PART_02 WITH TABLE TEST_NON INCLUDING INDEXES; TBR-7281: Allowed only for a local partitioned index. SQL> !tberr 7281 /* * err: -7281 * name: ERROR_DDL_ALLOWED_LOCAL_INDEX_ONLY * desc: Allowed only for a local partitioned index. * cause: Can be executed only for a local partitioned index. * action: Unable to execute this command; */ SQL> ALTER TABLE TEST_PART EXCHANGE PARTITION PART_02 WITH TABLE TEST_NON EXCLUDING INDEXES; Table 'TEST_PART' altered.</pre>																																				
<p># 오브젝트 재조회</p>	<pre>SQL> SELECT SEGMENT_NAME, PARTITION_NAME, TABLESPACE_NAME FROM USER_SEGMENTS WHERE SEGMENT_NAME LIKE 'TEST_%' ORDER BY 1, 2;</pre> <table border="1"> <thead> <tr> <th>SEGMENT_NAME</th> <th>PARTITION_NAME</th> <th>TABLESPACE_NAME</th> </tr> </thead> <tbody> <tr> <td>TEST_NON</td> <td></td> <td>SYSTEM</td> </tr> <tr> <td>TEST_NON_IDX</td> <td></td> <td>USR</td> </tr> <tr> <td>TEST_PART</td> <td>PART_01</td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART</td> <td>PART_02</td> <td>USR</td> </tr> <tr> <td>TEST_PART</td> <td>PART_03</td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART</td> <td>PART_04</td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART_GLOBAL_IDX P1</td> <td></td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART_GLOBAL_IDX P2</td> <td></td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART_GLOBAL_IDX P3</td> <td></td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART_GLOBAL_IDX P4</td> <td></td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART_GLOBAL_IDX P5</td> <td></td> <td>SYSTEM</td> </tr> </tbody> </table> <pre>SQL> SELECT INDEX_NAME, STATUS FROM USER_INDEXES WHERE INDEX_NAME LIKE '%TEST_%' ORDER BY 1;</pre>	SEGMENT_NAME	PARTITION_NAME	TABLESPACE_NAME	TEST_NON		SYSTEM	TEST_NON_IDX		USR	TEST_PART	PART_01	SYSTEM	TEST_PART	PART_02	USR	TEST_PART	PART_03	SYSTEM	TEST_PART	PART_04	SYSTEM	TEST_PART_GLOBAL_IDX P1		SYSTEM	TEST_PART_GLOBAL_IDX P2		SYSTEM	TEST_PART_GLOBAL_IDX P3		SYSTEM	TEST_PART_GLOBAL_IDX P4		SYSTEM	TEST_PART_GLOBAL_IDX P5		SYSTEM
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	<pre> INDEX_NAME STATUS ----- TEST_NON_IDX UNUSABLE TEST_PART_GLOBAL_IDX UNUSABLE 2 rows selected. SQL> SELECT INDEX_NAME, PARTITION_NAME, STATUS FROM USER_IND_PARTITIONS WHERE INDEX_NAME LIKE '%TEST_%' ORDER BY 1, 2; INDEX_NAME PARTITION_NAME STATUS ----- TEST_PART_GLOBAL_IDX P1 UNUSABLE TEST_PART_GLOBAL_IDX P2 UNUSABLE TEST_PART_GLOBAL_IDX P3 UNUSABLE TEST_PART_GLOBAL_IDX P4 UNUSABLE TEST_PART_GLOBAL_IDX P5 UNUSABLE 5 rows selected. </pre>
<p># 인덱스 리빌드</p>	<pre> ALTER INDEX TEST_PART_GLOBAL_IDX REBUILD PARTITION P1 ONLINE; .. ALTER INDEX TEST_PART_GLOBAL_IDX REBUILD PARTITION P5 ONLINE; SQL> ALTER INDEX TEST_NON_IDX REBUILD ONLINE; Index 'TEST_NON_IDX' altered. INDEX_NAME STATUS ----- TEST_NON_IDX VALID TEST_PART_GLOBAL_IDX VALID 2 rows selected. INDEX_NAME PARTITION_NAME STATUS ----- TEST_PART_GLOBAL_IDX P1 USABLE TEST_PART_GLOBAL_IDX P2 USABLE TEST_PART_GLOBAL_IDX P3 USABLE TEST_PART_GLOBAL_IDX P4 USABLE TEST_PART_GLOBAL_IDX P5 USABLE </pre>

	5 rows selected.
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2.3.7. Partition Exchange 수행 테스트 (Partition key 위배 시 WITH VALIDATION)

※ **VALIDATION** 옵션은 **Local Index** 유무와 무관하게 사용 가능하나, **Partition**과 교체 대상 테이블 간의 **컬럼-제약조건-인덱스 구조가 동일해야 하며, 구조 불일치 시 유효성 검사 단계에서 오류가 발생합니다.**

<p># TEST_NON 테이블에 1이 아닌 값 Insert</p>	<ul style="list-style-type: none"> • TEST_NON A 컬럼의 값은 1이며, part_02의 Partition key 값도 1이다. • TEST_NON 테이블에 1이 넘는 값을 넣고, Partition exchange 수행한다. <pre>SQL> INSERT INTO TEST_NON SELECT CEIL(DBMS_RANDOM.VALUE(1,10)) A, LEVEL B, DBMS_RANDOM.STRING('X',100) C, TO_DATE(SYSDATE + LEVEL/24/60/60) D FROM DUAL CONNECT BY LEVEL <= 1000;</pre> <p>1000 rows inserted.</p> <pre>SQL> COMMIT;</pre> <p>Commit completed.</p>
<p># Partition Exchange 수행 (WITH VALIDATION)</p>	<pre>SQL> ALTER TABLE TEST_PART EXCHANGE PARTITION PART_02 WITH TABLE TEST_NON WITH VALIDATION;</pre> <p>TBR-7287: Some rows in the table are invalid for the specified partition.</p> <pre>SQL> !tberr 7287 /* * err: -7287 * name: ERROR_DDL_ROWS_DONT_QUALIFY_FOR_PARTITION * desc: Some rows in the table are invalid for the specifiedpartition. * cause: Some rows cannot be inserted in the specifiedpartition. * action: Remove the invalid rows and try again.; */</pre> <ul style="list-style-type: none"> • Partition exchange 수행 시, TEST_NOE 테이블의 몇몇 데이터들이 partition key 값이 아닌 데이터가 존재한다는 뜻. <p>* 해결 방안</p> <ul style="list-style-type: none"> • Partition key를 위배하는 데이터를 찾아 delete 수행 필요 • WITHOUT VALIDATION 옵션을 주어 강제로 Partition Exchange 수행 필요

2.3.8. Partition Exchange 수행 테스트 (Partition key 위배 시 WITHOUT VALIDATION)

※ WITHOUT VALIDATION 옵션 사용 시, 파티션 키 유효성 검사를 생략하므로, 파티션 키를 위배한 데이터가 파티션에 포함될 수 있으며, 이후 DML 수행 시 데이터 정합성 문제 및 오류 및 DDL 수행에 대한 오류가 발생할 수 있음에 유의해야 합니다.

<p># Partition Exchange 수행 (WITHOUT VALIDATION)</p>	<pre>SQL> ALTER TABLE TEST_PART EXCHANGE PARTITION PART_02 WITH TABLE TEST_NON WITHOUT VALIDATION;</pre> <p>Table 'TEST_PART' altered.</p>																																							
<p># 오브젝트 조회</p>	<pre>SQL> SELECT SEGMENT_NAME, PARTITION_NAME, TABLESPACE_NAME FROM USER_SEGMENTS WHERE SEGMENT_NAME LIKE 'TEST_%' ORDER BY 1, 2;</pre> <table border="1"> <thead> <tr> <th>SEGMENT_NAME</th> <th>PARTITION_NAME</th> <th>TABLESPACE_NAME</th> </tr> </thead> <tbody> <tr> <td>TEST_NON</td> <td></td> <td>USR</td> </tr> <tr> <td>TEST_NON_IDX</td> <td></td> <td>USR</td> </tr> <tr> <td>TEST_PART</td> <td>PART_01</td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART</td> <td>PART_02</td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART</td> <td>PART_03</td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART</td> <td>PART_04</td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART_IDX</td> <td>PART_01</td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART_IDX</td> <td>PART_02</td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART_IDX</td> <td>PART_03</td> <td>SYSTEM</td> </tr> <tr> <td>TEST_PART_IDX</td> <td>PART_04</td> <td>SYSTEM</td> </tr> </tbody> </table> <p>10 rows selected.</p> <pre>SQL> SELECT INDEX_NAME, STATUS FROM USER_INDEXES WHERE INDEX_NAME LIKE 'TEST_%' ORDER BY 1;</pre> <table border="1"> <thead> <tr> <th>INDEX_NAME</th> <th>STATUS</th> </tr> </thead> <tbody> <tr> <td>TEST_NON_IDX</td> <td>UNUSABLE</td> </tr> <tr> <td>TEST_PART_IDX</td> <td>UNUSABLE</td> </tr> </tbody> </table> <p>2 rows selected.</p> <pre>SQL> SELECT INDEX_NAME, PARTITION_NAME, STATUS</pre>	SEGMENT_NAME	PARTITION_NAME	TABLESPACE_NAME	TEST_NON		USR	TEST_NON_IDX		USR	TEST_PART	PART_01	SYSTEM	TEST_PART	PART_02	SYSTEM	TEST_PART	PART_03	SYSTEM	TEST_PART	PART_04	SYSTEM	TEST_PART_IDX	PART_01	SYSTEM	TEST_PART_IDX	PART_02	SYSTEM	TEST_PART_IDX	PART_03	SYSTEM	TEST_PART_IDX	PART_04	SYSTEM	INDEX_NAME	STATUS	TEST_NON_IDX	UNUSABLE	TEST_PART_IDX	UNUSABLE
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<p># 1) 인덱스 리빌드</p>	<pre> SQL> alter session set _INDEX_BUILD_USING_FULL_SCAN=Y; Session altered. SQL> ALTER INDEX TEST_PART_IDX REBUILD PARTITION PART_02; Index 'TEST_PART_IDX' altered. SQL> ALTER INDEX TEST_NON_IDX REBUILD ; Index 'TEST_NON_IDX' altered. SQL> alter session set _INDEX_BUILD_USING_FULL_SCAN=N; Session altered. </pre>
<p># 위배 데이터 조회</p>	<pre> SQL> SELECT COUNT(*) FROM TEST_PART PARTITION(PART_02) WHERE A <> 1; COUNT(*) ----- 1000 1 row selected. </pre>